

REMARKS

Applicants' undersigned attorney thanks the Examiner for his comments. Applicants respectfully request reconsideration of this patent application, particularly in view of the above Amendment and the following remarks. Currently, Claims 1-20 are pending.

The present invention is directed to a method for sealing a freezer enclosure and a protective coating for a freezer enclosure. A freezer enclosure may be sealed by a screen including a plurality of opening on wall of the freezer enclosure, applying a polyurea coating to the screen, and solidifying the polyurea coating. The polyurea coating is applied to the screen in a sufficient quantity to coat the screen and permeate openings in the screen through to the wall. The polyurea coating may include two components, Component A and Component B. Component A suitably includes a mixture of diphenylmethane diisocyanate, modified methylenediphenylene isocyanate (MDI) and methylenediphenylene isocyanate (MDI) homopolymer. Suitably, Component B consists essentially of N,N' dialkylamino-diphenylmethane; diethyltoluenediamine; poly(oxy(methyl-1,2-ethanediyl)), Alpha-(aminomethylethyl)-omega-(2-aminomethylethoxy)-; and glyceryl poly(oxypropylene) triamine.

Amendments to the Specification

The specification has been amended on page 7, lines 13-14 to clarify that MDI is an acronym for methylenediphenylene isocyanate. The specification has further been amended on page 7, lines 18-19 to correct a typographical error in the recitation of poly(oxy(methyl-1,2-ethanediyl)), Alpha-(2-aminomethylethyl)-omega-(2-aminoethylethoxy)-.

The specification has been amended on page 11, line 10 to clarify that the pendant methyl group on the right side of the chemical structure depends from the CH group within the brackets []. The specification has been further amended on page 11, line 16 to correct a typographical error in the spelling of diphenylmethane diisocyanate.

Amendment to the Claims

Claims 1-20 have been examined with no claims allowed. Applicants request cancellation of Claim 2 without prejudice. Amended Claims 1, 4, 5, 8, 9 and 15-20 are included herein. Applicants have added new Claims 21 and 22.

Claim 1 has been amended to recite that the screen is coated with a polyurea coating. Support for this amendment is found throughout the specification and in original Claim 2.

Claim 2 has been canceled.

Claim 4 has been amended to recite that one of the compositions included in the polyurea coating consists essentially of N,N' dialkylamino-diphenylmethane, diethyltoluenediamine, poly(oxy(methyl-1,2-ethanediyl)), -Alpha-(2-aminomethylethyl)-omega-(2-aminoethylethoxy)-, and glyceryl poly(oxypropylene) triamine.

Claim 4 has further been amended to correct a typographical error in the spelling of poly(oxy(methyl-1,2-ethanediyl)), Alpha-(aminomethylethyl)-omega-(2-aminomethylethoxy)-.

Claim 5 has been amended to recite that one of the two compositions comprises diphenylmethane diisocyanate, modified methylenediphenylene isocyanate and methylenediphenylene isocyanate homopolymer. Support for this amendment is found on page 7, lines 11-14 and in the amended paragraph above.

Claim 8 has been amended to recite the proper antecedent basis of a polyurea coating. The preamble of Claim 8 has been amended to recite that the method of Claim 1 further comprises the step of applying the polyurea coating in ambient temperatures above freezing.

Claim 9 has been amended to recite the proper antecedent basis of a polyurea coating.

Claims 15-19 have been amended to recite a protective coating for a freezer enclosure.

Claim 15 has been further amended to recite that cured polyurea coating includes a mixture of Component A and Component B wherein Component B consists essentially of poly(oxy(methyl-1,2-ethanediyl)), Alpha-(aminomethylethyl)-

omega-(2-aminomethylethoxy)-. Support for this amendment is found on page 7, lines 16-20.

Claim 16 has been further amended to recite the proper antecedent basis of Component A and Component B and to correct a typographical error in the spelling of poly(oxy(methyl-1,2-ethanediyl)), Alpha-(aminomethylethyl)-omega-(2-aminomethylethoxy)-. Claim 16 has also been amended to clarify that Component A includes diphenylmethane diisocyanate, modified methylenediphenylene isocyanate and methylenediphenylene isocyanate homopolymer. Support for this amendment is found on page 7, lines 11-14.

Claim 20 has been amended to recite that the refrigeration device includes a polyurea coating including a mixture of two components.

New Claim 21 depends from Claim 15 and recites the composition of Component B as disclosed in Example 1 on page 12, lines 12-15.

New Claim 22 depends from Claim 15 and recites the composition of Component B as disclosed in Example 2 on page 13, line 19 – page 14, line 1.

No new matter has been added by this Amendment. The number of independent claims in this application remains the same. The total number of claims in this application is increased by 1. Therefore, a payment for claim fees is included with this Amendment. Should additional claim fees, beyond what has been remitted with this Amendment, be required, Applicants' undersigned attorney authorizes that such fees may be charged to Deposit Account No. 19-3550.

Claim Interpretation

Regarding claims 5 and 16, Applicants confirm that the Examiner's interpretation of MDI as methylenediphenylene isocyanate is correct. Appropriate correction to the specification and claims has been made.

Specification

As discussed above, Applicants have amended the specification on page 7, lines 18-19 to correct a typographical error in the spelling of poly(oxy(methyl-1,2-ethanediyl)), Alpha-(2-aminomethylethyl)-omega-(2-aminoethylethoxy)-. In particular, the spelling of this compound has been amended to add a dash "-" between (2-aminomethylethyl) and the word "omega" and to include a dash "-" after (2-aminoethylethoxy). However, Applicants respectfully submit that the comma ","

appearing between poly(oxy(methyl-1,2-ethanediyl)) and the word “Alpha” is clear and would be understood by one having ordinary skill in the art at the time the invention was made. Support for this spelling may be found, for example, in the National Occupational Exposure Survey conducted by the Centers for Disease Control (CDC) as shown in the printout of a page from the CDC website (www.cdc.gov/noes/noes2/x9732occ.html) included in Appendix A of this Amendment. Therefore, Applicants respectfully request withdrawal of this objection.

Claim Rejections - 35 USC §112

The rejection of Claims 3-7 and 15-19 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention is respectfully traversed.

Regarding Claims 3-7, Claim 1 has been amended to recite that the polymer includes a polyurea coating. Therefore proper antecedent basis exists for the “polyurea coating” recited in Claims 3-7.

As discussed above, Claims 4 and 16 have been amended to correct a typographical error in the spelling of poly(oxy(methyl-1,2-ethanediyl)), Alpha-(2-aminomethylethyl)-omega-(2-aminoethylethoxy)-. Furthermore, as discussed above, this spelling would be clear to one having ordinary skill in the art at the time the invention was made.

Claims 15-19 have been amended to recite a protective coating for a freezer enclosure including a screen and a cured polyurea coating.

For at least the reasons presented above, Applicants respectfully submit that Claims 3-7 and 15-19 particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claim Rejections - 35 USC §103

The rejection of Claims 1, 2, 10, 15 and 17-20 under 35 U.S.C. §103(a) as being unpatentable over Japanese Publication No. 54-123172 to Yuuzaburou et al. in view of Japanese Publication No. 57-104747 to Toshio is respectfully traversed.

The Yuuzaburou reference discloses a reinforcing material such as a mesh cloth treated with, for example, a urethane type tackifier. The reinforcing materials may be used for lining the walls of refrigerators.

Claims 1, 10, 15 and 20 recite a method for sealing a freezer enclosure by applying a polyurea coating to a screen, a protective coating for a freezer enclosure including a screen and a polyurea coating and a refrigeration device including a polyurea coating, respectively. In contrast, the Yuuzaburou reference discloses applying a tackifier or adhesive substance such as a urethane type tackifier to a mesh cloth to form a reinforcing material. The Yuuzaburou reference does not disclose or suggest a protective coating suitable for sealing a freezer enclosure or for use in a refrigeration device which includes a polyurea coating.

The Toshio reference does not overcome the deficiencies of the Yuuzaburou reference. The Toshio reference discloses the construction of a foamed structure including a netting material fixed directly to a surface of a base and an expandable thermosetting resin composition applied onto the netting. Suitable expandable thermosetting resin compositions include urea resins.

The Toshio reference does not disclose or suggest the use of a polyurea coating but instead discloses that a urea resin may be applied to the netting material. One having ordinary skill in the art at the time the invention was made would know that a urea resin and a polyurea coating are not the same material. In fact, a urea resin is generally known as urea-formaldehyde resin which is derived by the reaction of carbamide with formaldehyde or its polymers. (See, for example, McGraw-Hill Dictionary of Scientific and Technical Terms 2108 (Sybil P. Parker ed., 5th ed. 1994). A copy of the referenced page is included in Appendix B of this Amendment.) A polyurea coating, in contrast, is a product of the reaction between an isocyanate and a polyamine as discussed on page 9, line 18 – page 10, line 8 of the subject application. Therefore, neither reference alone, or in combination, discloses or suggests a protective coating including a screen and a polyurea coating suitable for sealing a freezer enclosure or for use in a refrigeration device.

For at least the reasons given above, Applicants respectfully submit the Yuuzaburou reference alone, or in combination with the Toshio reference, does not disclose or suggest Applicants' invention as recited in Claims 1, 10, 15 and 20. Because Claim 2 has been canceled and Claims 17-19 depends from Claim 15, these claims are patentable over the Yuuzaburou reference in view of the Toshio reference.

Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

The rejection of Claims 3-8, 11-13 and 16 under 35 U.S.C. §103(a) as being unpatentable over Japanese Publication No. 54-123172 to Yuuzaburou et al. in view of Japanese Publication No. 57-104747 to Toshio as applied to Claims 1 and 15 above, and further in view of U.S. Patent 5,189,075 to Zimmerman et al. is respectfully traversed.

As discussed above, neither the Yuuzaburou reference nor the Toshio reference, alone or in combination, suggest or disclose a protective coating including a screen and a polyurea coating suitable for sealing a freezer enclosure or for use in a refrigeration device. The Zimmerman reference does not overcome the deficiencies of the Yuuzaburou reference, alone or in combination with, the Toshio reference.

The Zimmerman reference discloses a polyurea elastomer, suitable for use as a spray coating, which is the product of polyisocyanate reacted with di- and/or tri-functional polyoxyalkylene polyamine and low molecular weight, polyoxyalkylene polyamine chain extender having at least four functional groups including two or more amino groups (Col. 2, lines 5-10). The Zimmerman reference is silent as to what uses the disclosed polyurea coatings may be put to and, in particular, does not disclose or suggest that such a polyurea coating may be utilized to prepare a protective coating for a freezer enclosure including a screen and a polyurea coating. Thus, one having ordinary skill in the art at the time the invention was made would not be motivated to combine the disclosures of the Yuuzaburou reference and/or the Toshio reference and/or the Zimmerman reference to prepare the protective coating of the present invention and/or to seal a freezer enclosure with such a protective coating as required by Claims 1, 10 and 15.

Additionally, one having ordinary skill in the art at the time the invention was made would not be motivated to combine the disclosures of the Yuuzaburou, Toshio and Zimmerman references to prepare a protective coating for a freezer enclosure including a screen and a polyurea coating including a mixture of two components, wherein one component, Component B, consists essentially of: N,N'-dialkylamino-diphenylmethane; diethyltoluenediamine; poly(oxy(methyl-1,2-

ethanediyl)), Alpha-(aminomethylethyl)-omega-(2-aminomethylethoxy)-; and glyceryl poly(oxypropylene) triamine as recited in amended Claims 4 and 16.

The Examiner asserts that using these compounds to form polyurea coatings is well known and conventional as disclosed in Col. 7, line 35 to Col. 9, line 35 and Table II of the Zimmerman reference. However, Applicants respectfully submit that the Zimmerman reference does not disclose the polyurea coating of the present invention as recited in amended Claims 4 and 16. In fact, none of the formulations presented in Table II of the Zimmerman reference include a polyurea coating including two components wherein one of the components consists essentially of N,N' dialkylamino-diphenylmethane; diethyltoluenediamine; poly(oxy(methyl-1,2-ethanediyl)), Alpha-(aminomethylethyl)-omega-(2-aminomethylethoxy)-; and glyceryl poly(oxypropylene) triamine. Each of the polyurea elastomer foam preparations disclosed in the Zimmerman reference either do not include all of the recited required compounds of Component B of the present invention or includes significant levels of additional compounds. Thus, Applicants respectfully submit that one having ordinary skill in the art at the time the invention was made would not be motivated to prepare the polyurea coating recited in amended Claims 4 and 16 in view of the Zimmerman reference alone or in combination with the Yuuzaburou and/or Toshio references.

Regarding Claims 6 and 11, the Examiner asserts that the Zimmerman reference discloses mixing the polyurea coating under pressure as disclosed in Col. 8, lines 32-45 of the Zimmerman reference. However, Applicants note that such mixing is directed to the preparation of a low molecular weight, polyoxyalkene polyamine chain extender having at least four functional groups including two or more amino groups not the preparation of a polyurea coating composition. Thus, Applicants respectfully submit that the Zimmerman reference alone or in combination with the Yuuzaburou reference and/or the Toshio reference does not disclose or suggest mixing the components of the polyurea coating of the present invention under pressure.

Similarly with regard to Claim 12, the Examiner asserts that the Zimmerman reference discloses heating of the two components of the polyurea coating of the present invention prior to mixing. However, Applicants note that such

heating step is directed to the preparation of a low molecular weight, polyoxyalkene polyamine chain extender not a polyurea coating composition. Thus, Applicants respectfully submit that the Zimmerman reference alone or in combination with the Yuuzaburou reference and/or the Toshio reference does not disclose or suggest heating each of the components of the polyurea coating of the present invention prior to mixing.

For at least the reasons above, Applicants respectfully submit that Claim 1, 10 and 15 are patentable over the Yuuzaburou reference in view of the Toshio reference and further in view of the Zimmerman reference. Because Claims 3-8 depend for Claim 1, Claims 11-13 depend from Claim 10 and Claim 16 depends from Claim 15, Applicants respectfully submit that these claims are also patentable. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

The rejection of Claim 9 under 35 U.S.C. §103(a) as being unpatentable over Japanese Publication No. 54-123172 to Yuuzaburou et al. in view of Japanese Publication No. 57-104747 to Toshio as applied to Claim 1 above, and further in view of the BlastMaster web page is respectfully traversed.

As discussed above, neither the Yuuzaburou reference nor the Toshio reference, alone or in combination, disclose or suggest a method for sealing a freezer enclosure including the steps of applying a screen to a wall of the freezer enclosure, applying one or more coatings of a polyurea coating to the screen and solidifying the polyurea coating. The Blastmaster web page does not overcome the deficiencies the Yuuzaburou and Toshio references.

The Blastmaster web page discloses the use of sodablasting for cleaning various surfaces. The Blastmaster web page, however, is silent as to methods for sealing a freezer enclosure as recited in Claim 1 of the present invention. Thus, the Yuuzaburou reference alone or in combination with the Toshio reference and/or the BlastMaster web page does not disclose or suggest a method for sealing a freezer enclosure as recited in amended Claim 1.

Therefore, Applicants respectfully submit that amended Claim 1 is patentable over the Yuuzaburou reference in view of the Toshio reference and further in view of the BlastMaster web page. Because Claim 9 depends from Claim 1

Applicants respectfully submit that this claim is also patentable. Accordingly, Applicants respectfully request withdrawal of this rejection.

The rejection of Claim 14 under 35 U.S.C. §103(a) as being unpatentable over Japanese Publication No. 54-123172 to Yuuzaburou et al. in view of Japanese Publication No. 57-104747 to Toshio as applied to Claim 10, and further in view of Japanese Publication No. 07-099949 to Mitsuhiro is respectfully traversed.

As discussed above, neither the Yuuzaburou reference nor the Toshio reference, alone or in combination, disclose or suggest a method for sealing a freezer enclosure including the steps of applying a screen to a wall of the freezer enclosure, applying a two component polyurea coating to the screen and curing the coating. The Mitsuhiro reference does not overcome the deficiencies the Yuuzaburou and Toshio references.

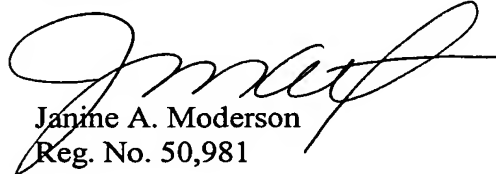
The Mitsuhiro reference discloses a freezer including an apparatus for washing and sterilizing the freezer wherein the freezer is washed with a washing liquid and sterilized by steam blown from steam pipes. The Mitsuhiro reference is silent as to how such a freezer may be sealed with a protective coating. Thus, the Yuuzaburou reference alone or in combination with the Toshio reference and/or the Mitsuhiro reference does not disclose or suggest a method for sealing a freezer enclosure as recited in Claim 10.

For at least the reasons above, Applicants respectfully submit that Claim 10 is patentable over the Yuuzaburou reference in view of the Toshio reference, and further in view of the Mitsuhiro reference. Because Claim 14 depends from Claim 10, Applicants respectfully submit that this claim is also patentable. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicants believe that this case is now in condition for allowance. If the Examiner feels that any issues remain, then Applicants' undersigned attorney would like to discuss the case with the Examiner. The undersigned can be reached at (847) 490-1400.

Respectfully submitted,



Janine A. Moderson
Reg. No. 50,981

Pauley Petersen & Erickson
2800 W. Higgins Road, Suite 365
Hoffman Estates, Illinois 60195
847/490-1400
FAX 847/490-1403